ED-cPSD Documentation

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Introduction

This document serves as reference and documentation for ED-cPSD, a software based on a novel algorithm of sequential erosion-dilation for continuous phase-size distribution (ED-cPSD) estimation. This document is segmented into a few different chapters which serve as reference for both users and contributors.

Chapter 1 is dedicated to get new users running the software and generating meaningful results immediately. Chapter 1 will walk new users through the installation process, basic GUI usage, running code de-coupled from the GUI, preparing inputs with ImageJ [**?**] and/or simple python scripts (OpenCV), expected outputs, and interpreting outputs.

Chapter 2 will first present an in-depth mathematical description to the algorithm working behind the scenes to calculate the continuous phase-size distribution (cPSD). This chapter also includes implementation details for both the standalone code and the GUI computational model. These implementation details are important for someone who is looking to contribute to and/or fork this project.

Chapter 3 presents several examples and case studies of the use of this software/algorithm. Each case study carries highlights quintessential aspects of the algorithm, such as discussions on how to interpret the output data given different inputs, comparisons with other cPSD and discrete phase-size distribution (dPSD) algorithms, and use cases in materials science and energy research.

Finally, chapter 4 has additional information, such as acknowledgments, code licensing information, and references.

Chapter 1

Quick-Start Guide

Chapter 2

Algorithm Details

Chapter 3

Case Studies

Chapter 4

Additional Information

4.1 Acknowledgments

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Bibliography